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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/731,226	12/04/2000	Rajeev Joshi	18865-005100US	8732

7590 12/30/2003  
Kevin T. LeMond  
TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, 8th Floor  
San Francisco, CA 94111-3834

EXAMINER

VU, HUNG K

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application N .

09/731,226

Applicant(s)

JOSHI, RAJEEV

Examiner

Hung K. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 is/are allowed.
- 6) ☒ Claim(s) 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barr et al. (US 2002/0000665, of record).

Barr et al. discloses, as shown in Figure 12, a wafer for use in making a chip device, the wafer comprising:

- a non-passivated die;
- a refractory metal layer (126) at non-isolation locations on the die [Col. 1, section 10];
- a first copper layer (128) directly on the refractory metal layer [Col. 1, section 10];
- a titanium passivation layer (82) directly on the first copper layer at non-solder bump locations [Col. 2, section 13 and Col. 3, section 22];
- under bump material (1220) directly on the first copper layer at solder bump location.

Barr et al. does not disclose the refractory metal layer comprising titanium layer. However, it is recognized in the art that the refractory metal layer is a generic term used for titanium layer.

Therefore, the phrase “refractory metal” would meet the recited term of “titanium”.

With regard to claims 7 and 9, Barr et al. and /or Wang et al. disclose the wafer further comprising solder bump on the under bump material.

***Allowable Subject Matter***

2. Claims 10 – 12 are allowed.

3. The following is an examiner's statement of reasons for allowance:

Applicant's claims 10 – 12 are allowable over the references of record because none of these references disclose or can be combined to yield the claimed invention chip device comprising the second titanium layer being directly on the copper layer, wherein the second titanium layer includes an aperture, and a copper structure within the aperture of the second titanium, in combination the remaining claimed limitations.

***Response to Arguments***

4. The rejection of claims 6-9 under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (PN 6,362,087) in view of Agarwala (PN 5,376,584) is accordingly withdrawn due to the submitting of the Declaration.

5. Applicant's arguments filed 10/16/03 have been fully considered but they are not persuasive.

It is argued, at page 4 of the Remarks, that the submitting of the Declaration should overcome the rejection of Barr et al. (2002/0000665) in view of Wang et al. (6,362,087). This argument is not convincing because it is recognized in the art that the refractory metal layer is a generic term used for titanium layer. Therefore, the phrase "refractory metal" would meet the recited term of

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“titanium”. The combination of Barr et al. with Wang et al. is just to show that refractory metal is well recognized as the generic term used for titanium layer.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

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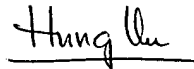
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

December 22, 2003

A handwritten signature in cursive script, appearing to read "Hung Vu", is written over a horizontal line.

Hung Vu

Patent Examiner